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ABSTRACT

In this analysis of the structure of the faculty characterizations of students, the same data was used as in the initial study. An oblique solution was obtained by applying the Promax method of Hendrickson and White to the previous Equamax solution. This yielded 18 factors. From intercorrelations among the factor axes, a principal axes procedure was used for second-order factor extraction, and four factors were defined by rotation to the normal Equamax criterion. These factors were tentatively named interpersonal style, ethical orientation, intellectual involvement, and academic performance style. See also TM 000 174, 000 176-178, and 000 180-181. (DG)

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FACULTY PERCEPTIONS OF STUDENTS

V. A Second-order Structure for Faculty Characterizations

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Abstract

A matrix of 80 different trait ratings of college students by teachers, plus high school and college grades and the students' SAT scores, was factored, utilizing the Promax method of Hendrickson and White. This yielded 18 factors. From intercorrelations among the factor axes, a principal axes procedure was used for (second-order) factor extraction, and four factors were defined by rotation to the normal Equamax criterion. These factors were tentatively named (I) Interpersonal Style, (II) Ethical Orientation, (III) Intellectual Involvement, and (IV) Academic Performance Style.

FACULTY PERCEPTIONS OF STUDENTS:

V. A Second-Order Structure for Faculty Characterizations

Introduction

Previous reports in this series have described the development of a rating form for college teachers to use in describing characteristics of the students they feel are important (Davis, 1964a), the traits which define the desirable student (Davis, 1964b; Davis, 1964d), and an attempt to determine the structure of faculty characterizations by means of factor analysis and an orthogonal rotation (Davis, 1964c). The present analysis is a further exploration for a useful structure by applying oblique rotational systems and then following through to a second-order structure.

Source of Data

The same data used in the initial study of structure (Davis, 1964c) were employed in the present analysis. These involved 696 sets of ratings by 407 raters of 398 students on 80 traits. Also included in the data matrix were the students' scores on the College Board Scholastic Aptitude Test (SAT-V and SAT-M), their high school rank (HSR), and their freshman average grades (FAG). As in the previous study, missing ratings data on single traits for given students were filled in by assigning the nearest whole number (from 0 to 5) to the mean for all raters and students.

Procedure

Intercorrelations among the 80 ratings, SAT-V, SAT-M, HSR, and FAG were computed (Davis, 1964c, p. 6), and factor extraction was accomplished as described in the earlier report (Davis, 1964c, pp. 3-4) by an iterative

principal axes procedure. This yielded 18 significant factors accounting for 86.4% of the correlation among the variables.

Two different methods for analytic determination of oblique simple structure were employed. The first involved the solution of the Oblimax criterion of Pinzka and Saunders (1954). The second employed the Promax solution of Henderickson and White (unpublished, undated paper). This latter procedure is an attempt to generalize the Varimax solution to the oblique case not by using the Varimax criterion itself but, with a factor matrix rotated to that criterion, by developing some function of the factor loadings for use as a criterion for rotation to the oblique case.

In the present analysis, the rationale of Hendrickson and White was applied to the previous Equamax solution (Davis, 1964c) by generating a matrix wherein each element would be a function of the Equamax loading, the length of the score vector, and the length of the factor vector. A matrix $P = (p_{ij})$ was defined such that:

$$p_{ij} = \frac{\left|a_{ij}^{n+1}\right|}{a_{ij}} \quad , n > 1 \quad . \tag{1}$$

Each element of this matrix is, then, the nth power (signs remain unchanged) of the corresponding element in the row-column normalized Equamax matrix. The least squares regression of this matrix can be found in the usual way:

$$L = (F'F)^{-1} F'P \quad , \tag{2}$$

where L is the unnormalized transformation matrix to the reference vector structure, F is the Equamax rotated matrix, and P is the matrix derived from the Equamax as defined in (1).

Equation (1), of course, yields a family of matrices P , one for each value of n . In the absence of any clear rationale for selecting a particular value of n , it was arbitrarily decided to set n equal to 3. The Procrustes rotation (Hurley & Cattell, 1962) in Equation (2) was then accomplished.

For both the Oblimax and Promax solutions, the factor correlation matrices were computed. Inspection revealed the Promax solution to be both more interesting and cleaner. The second-order analysis was then accomplished by an iterative principal axes factoring of the first-order factor intercorrelation matrix. By inspection of latent roots, four second-order factors were determined. A blind orthogonal approximation to simple structure was then achieved by rotation to the normal Equamax criterion of Saunders (1962).

Results

Variables, communalities, and factor loadings for the rotation to the Promax criterion are given in Table 1; correlations among the 18 Promax factor axes are given in Table 2. (Table A1 in the appendix presents, for comparison, the variables and factor loadings from the Oblimax rotation, and Table A2 gives the correlations among these factor axes.) The latent roots for the principal axes solution of the matrix in Table 2 are given in Table 3. The Equamax solution for second-order structure (from the Promax solution) is presented in Table 4.

Interpretation of Factor Structure

The essential content of the factors drawn from the oblique rotations so closely parallels that of the previous orthogonal solution (Davis, 1964c) that additional comment seems unnecessary. However, it would seem by inspection

Table 1

SCALES, FACTOR LOADINGS, AND FACTORS: 1962 STUDENT RATING FORM (PROMAX ROTATION) (N=696)

VARIABLE	COM	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
A. SAT																			
84. SAT-M	52	65	01	09	-03	03	-04	01	-02	-02	-03	05	00	14	01	01	-04	01	-02
83. SAT-V	56	64	-00	-05	-02	-01	00	-02	04	-01	12	02	-05	22	-06	-05	03	-02	03
B. EXTROVERSION																			
42. extroverted	66	01	60	00	01	22	02	-03	04	07	-08	-01	07	00	02	-15	-02	-12	-06
6. gregarious	68	00	51	-03	-04	14	-05	08	04	18	00	-01	05	04	05	-06	01	-12	-04
78. good sense of humor	58	-02	38	06	-08	04	-03	00	05	02	07	03	-02	-10	14	00	04	06	10
71. argumentative	58	00	36	-01	06	-23	-03	-12	13	-04	-01	-02	07	09	-07	01	-04	-03	07
33. willing to ask questions	56	02	37	-06	07	-13	13	-05	02	-06	06	03	-01	05	07	00	09	01	-01
63. optimistic	54	09	29	-09	00	22	10	00	-09	-01	-09	00	09	00	09	10	07	-01	06
76. arrogant	58	00	27	12	-02	-02	-03	-06	11	-11	-04	-06	-04	00	-12	03	-16	-19	-05
79. high level of physical energy	39	-06	24	07	10	04	09	-04	-04	18	-07	-02	-06	-03	-02	10	-03	03	13
C. INTELLECTUAL ABILITY																			
49. intellectually quick	82	01	00	50	-01	05	-01	-02	02	03	03	-03	01	15	-02	12	02	-06	01
13. above average ability	73	-02	00	48	00	01	00	02	-03	00	02	07	-04	18	03	09	-03	-02	03
37. makes good grades with ease	61	08	-04	45	-05	22	-01	-07	-05	-05	09	-03	05	18	01	06	-04	-12	-03
28. good at analyzing	70	05	01	41	07	01	-03	-01	07	-08	02	-01	01	06	-02	07	-11	02	03
25. good grasp of abstracts	68	05	-04	39	06	-05	-06	-02	05	-03	11	00	02	01	-01	12	03	03	01
1. high academic performance	71	-03	-01	33	11	06	19	03	00	02	04	02	-03	23	01	05	-09	-04	-02
80. kind of S institution should admit	63	-10	05	19	01	-03	12	00	04	01	01	13	00	11	08	09	01	04	01
D. WORK ORIENTATION																			
14. meets deadlines	57	07	02	03	49	03	02	04	02	-07	01	05	03	-06	-01	-02	00	03	03
2. works steadily	63	-02	-04	-04	46	07	13	-03	-01	-03	02	-02	04	03	08	03	-03	-04	00
62. completes undertakings	61	07	05	03	46	06	05	02	-03	06	00	08	01	-09	-07	05	04	01	02
38. thorough	77	03	00	05	43	-03	14	02	09	01	-03	-01	03	03	-02	05	01	-01	01
50. industrious	76	-05	04	-01	36	-02	26	00	-07	07	-01	04	01	07	00	03	02	02	-01
26. self-disciplined	64	-06	-07	04	31	07	13	05	09	-04	-03	08	07	03	01	04	-01	-03	03
E. FREEDOM FROM ANXIETY																			
11. seldom worries	51	-01	18	08	-03	54	-06	-04	-05	00	02	01	-01	-01	-08	03	01	04	09
23. calm	51	00	02	07	07	51	-02	-01	07	02	-03	-01	02	-01	04	-02	00	07	11
55. low need for reassurance	45	-03	09	-07	07	41	-12	00	13	-02	03	03	-05	08	-04	14	-03	30	-02
35. happy	64	-03	25	-01	-03	37	18	04	-04	00	03	-01	-02	-05	03	-03	00	05	17
53. stable	65	02	03	-04	12	34	10	06	11	00	03	14	-04	02	-01	-02	04	05	05

SCALES, FACTOR LOADINGS, AND FACTORS: 1962 STUDENT RATING FORM (PROMAX ROTATION) (N=696) (Continued)

VARIABLE	COM	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
F. ACADEMIC MOTIVATION																			
3. high interest in chosen field	44	00	05	03	03	02	42	04	-07	-01	05	-04	-03	-03	00	11	-07	-02	-03
56. high motivation to achieve	65	-02	00	01	15	-11	40	00	-07	05	00	00	-02	09	01	05	00	-14	02
61. performs to top of ability	58	-02	-03	-05	32	-02	33	01	-03	01	05	-08	-02	10	00	-04	-01	00	03
70. a serious student	71	03	-06	-03	24	-06	30	-06	01	02	11	03	-04	10	01	-01	03	07	-03
22. eager to learn	78	-06	10	05	15	-10	27	02	-05	-01	11	02	-03	05	05	05	06	09	-04
73. high intellectual curiosity	80	00	11	09	02	-07	25	-06	-03	03	19	02	-02	07	-02	05	08	08	-07
32. personal goals clear	51	00	06	-06	11	04	25	-03	03	-04	-01	04	03	06	-03	04	-02	-11	23
34. interested in ideas	69	02	12	14	00	-06	20	-01	02	-04	19	06	05	-04	00	04	03	02	-05
68. values like those of faculty	39	02	-06	00	-02	02	20	-01	03	-05	05	03	07	00	09	04	10	-01	-07
G. CONFORMITY																			
12. conforming	67	-04	-02	-04	04	-07	-01	56	05	00	-01	-03	-05	02	03	-01	-02	-06	01
48. orthodox in behavior	58	-02	-02	03	02	-04	04	51	10	-01	-09	05	-03	04	00	00	-02	02	-03
24. conventional	67	02	-01	-11	04	01	01	46	04	00	00	-06	02	02	-04	-18	-03	06	-03
60. accepts majority values	44	04	05	04	00	04	-05	34	-06	02	-02	05	02	00	02	-04	02	-14	14
72. has few idiosyncrasies	42	00	-05	01	-05	14	12	26	12	-03	-04	00	06	-01	00	-04	01	03	02
H. MATURITY																			
20. socially mature	71	-01	08	-05	03	06	-04	07	55	10	09	02	-02	-09	08	01	-02	-04	02
44. sophisticated	55	04	05	03	-05	-01	-15	05	53	12	06	-02	-02	-06	06	04	01	-10	02
21. intellectually mature	71	02	-05	19	09	04	11	03	26	-01	15	-03	02	01	-01	02	04	-02	-05
74. at home in college culture	53	04	08	-04	-06	16	16	-01	21	06	13	-04	-06	04	07	01	04	-03	08
I. POPULARITY																			
18. active in campus life	55	-05	01	-10	-04	-03	01	07	02	51	09	04	07	04	-06	21	-01	-13	-03
30. leader among peers	64	-03	14	-03	01	-01	-02	-02	17	48	-03	04	07	08	-02	13	02	-09	-12
66. works well with others	57	05	06	05	00	02	03	-01	04	45	01	-04	02	-01	01	-08	05	11	04
54. liked by peers	60	05	02	06	-01	-04	-02	-09	13	40	-09	-03	-01	01	13	-06	-01	09	17
J. INTELLECTUAL VALUES																			
46. reads widely	55	-01	-08	03	03	01	03	-08	02	00	44	01	02	03	-07	-01	01	04	20
8. culturally rich	65	02	-12	02	02	02	-01	-04	22	-02	44	-02	03	-08	06	06	-01	-08	19
10. broad intellectual interests	75	03	-01	03	-01	02	18	-04	09	03	43	00	08	01	-06	01	00	00	02
64. intellectually versatile	65	07	00	22	-03	03	02	-02	05	01	23	-02	01	07	-02	11	09	-03	05
K. PROBITY																			
43. acts ethically	64	-01	-01	03	04	02	-08	-02	-01	02	-02	56	03	01	01	-03	00	03	06
19. honest	71	00	-01	-03	-01	04	00	04	-02	-03	04	55	00	03	07	03	-02	05	04
67. principled	70	07	00	00	00	-02	01	-02	00	04	-05	47	05	-05	00	01	06	05	08
L. ALTRUISM																			
51. high concern for welfare of others	76	-03	05	01	02	-08	-02	-02	00	12	06	03	58	-03	-05	-07	-01	04	04
27. altruistic	58	00	05	-01	06	-01	-06	-05	-01	-02	-01	04	55	05	05	-02	-02	08	-07
15. interested in others	65	-04	11	03	05	10	-02	03	-04	15	08	-06	42	00	05	-05	-01	12	00
75. high respect for human dignity	47	00	-02	01	-10	-01	15	02	-01	01	04	12	20	-06	-03	04	06	09	05

SCALES, FACTOR LOADINGS, AND FACTORS: 1962 STUDENT RATING FORM (PROMAX ROTATION) (N=696) (Continued)

VARIABLE	COM	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
M. GRADE ACHIEVEMENT																			
86. Freshman GPA	54	15	-01	08	-05	03	07	-03	00	01	-03	02	-02	58	01	-05	06	-05	-03
85. High School Rank	31	20	00	05	00	-05	-03	08	-10	04	-01	-05	04	44	05	03	-01	09	07
N. LIKEABLENESS																			
5. pleasant	72	-03	06	01	-04	-05	01	00	12	-04	-08	02	04	07	55	07	-03	03	-01
29. likeable	78	-04	11	01	-05	-07	-03	-03	14	03	-03	08	00	08	51	-02	00	06	03
65. affable	67	04	32	-06	-03	02	07	-03	-03	05	-01	-06	-02	-02	33	-02	04	02	10
17. cooperative	61	02	-02	01	18	-03	05	05	-02	05	06	08	04	-02	27	00	06	00	-06
O. INDEPENDENT CREATIVITY																			
31. self-directing	59	-04	-14	03	12	07	06	-10	04	09	-04	-01	-03	04	01	42	00	04	01
7. independent	55	05	-13	06	02	12	04	-15	13	02	00	02	-06	00	02	35	00	04	01
16. shows originality	77	09	04	24	-07	-04	03	06	01	03	13	02	-06	-01	02	33	01	10	-05
4. imaginative	77	07	07	25	-12	-04	08	11	-03	03	14	00	00	-02	-04	32	02	08	-04
52. creative	69	04	-01	24	-02	-03	10	02	00	05	14	-08	-01	-05	-01	28	01	07	-01
40. deep	63	04	-09	16	01	-09	06	-04	09	00	10	04	09	-03	03	19	-03	13	00
P. OPEN-MINDEDNESS																			
45. open-minded	67	-03	03	02	-02	03	-03	-01	01	-01	08	01	-02	02	07	05	43	00	-10
57. fair-minded	61	02	-02	-01	-05	-01	-04	-08	04	09	-05	08	05	03	-03	-06	42	07	-02
69. open to new experience	55	-01	10	-01	00	01	-01	-06	-01	01	14	-01	-08	02	04	00	38	00	-02
77. generally objective in forming opinions	53	05	-03	-04	-01	-01	01	03	11	00	-04	-01	08	04	-04	09	32	09	-01
9. flexible	57	-06	06	08	04	09	-17	01	-01	-01	18	-06	04	-01	14	08	27	-04	05
41. willing to take direction	56	-02	03	03	18	-03	-01	12	-07	-04	03	07	-04	-03	16	-04	24	-03	-01
58. realistic in outlook	51	-12	-07	09	04	03	01	09	13	-02	-08	-07	-01	05	-04	03	22	02	21
Q. FREEDOM FROM STATUS-CENTEREDNESS																			
39. not status centered	42	-04	-06	-03	-02	05	-03	-07	-10	-06	00	-01	12	00	05	10	00	45	04
36. low need to stand out	48	03	-07	-03	02	27	-10	-04	-03	-01	-02	-03	-02	00	03	-06	03	44	-10
R. SELF-INSIGHT																			
59. positive family influence	18	01	00	-01	01	-03	-04	01	00	01	10	06	-03	01	01	-03	-04	-01	36
47. good self-understanding	53	00	00	-04	-02	01	02	04	18	-07	05	-04	09	04	01	09	03	08	35
Σa^2		2.21	1.71	1.64	1.58	1.47	1.33	1.17	1.12	1.11	1.06	1.02	1.01	0.98	0.98	0.97	0.93	0.86	0.71

Table 2

CORRELATIONS AMONG THE FIRST ORDER AXES: (PROMAX ROTATION) (N=696)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
A. SAT	-	04	17	07	06	06	00	04	07	10	03	10	02	10	10	16	01	06
B. Extroversion		-	28	02	-08	22	-15	20	15	29	-01	17	10	18	38	20	-08	34
C. Intellectual Ability			-	24	-05	52	-18	47	14	45	30	15	26	25	45	50	34	22
D. Work Orientation				-	02	54	21	34	10	03	43	18	22	22	24	37	16	24
E. Freedom from Anxiety					-	07	45	21	35	-30	09	22	-15	32	-09	28	02	32
F. Academic Motivation						-	10	53	28	24	54	41	14	44	35	67	32	41
G. Conformity							-	01	34	-36	10	20	-21	36	-34	20	-17	23
H. Maturity								-	23	21	35	33	22	21	43	47	24	37
I. Popularity									-	-03	19	40	-16	47	-01	39	03	39
J. Intellectual Values										-	19	16	25	16	47	28	17	02
K. Probity											-	47	12	41	22	47	44	25
L. Altruism												-	-08	46	28	53	27	41
M. Grade Achievement													-	-11	33	-04	04	-02
N. Likeableness														-	01	61	25	39
O. Independent Creativity															-	37	13	21
P. Open-Mindedness																-	30	44
Q. Freedom from Status-Centeredness																	-	05
R. Self-Insight																		-

Table 3

Latent Roots of the First-Order Factor

Intercorrelation Matrix

Factor	Latent Root	Factor	Latent Root
1	4.6769	10	.0096
2	2.2880	11	-.0307
3	.9885	12	-.0537
4	.7408	13	-.0910
5	.3552	14	-.0992
6	.3064	15	-.1309
7	.2091	16	-.1435
8	.1093	17	-.2048
9	.0297	18	-.2665

Table 4

Second-Order Factor Structure

First-Order Factors	Com	Second-Order Factors			
		I	II	III	IV
I. INTERPERSONAL STYLE					
I. Popularity	46	65	13	16	02
G. Conformity	59	63	-02	-43	08
N. Likeableness	63	59	51	14	-03
E. Freedom from Anxiety	37	57	01	-19	07
R. Self-Insight	47	56	07	24	31
L. Altruism	42	44	41	21	14
II. ETHICAL ORIENTATION					
Q. Freedom from Status-Centeredness	43	-10	64	06	07
K. Probity	54	14	63	00	36
P. Open-Mindedness	74	46	60	28	28
III. INTELLECTUAL INVOLVEMENT					
B. Extraversion	49	21	-14	64	11
J. Intellectual Values	51	-23	29	61	08
O. Independent Creativity	57	-13	11	59	44
C. Intellectual Ability	50	-03	38	47	36
A. SAT	03	07	07	12	04
IV. ACADEMIC PERFORMANCE STYLE					
D. Work Orientation	47	11	27	-10	62
F. Academic Motivation	68	26	50	22	56
H. Maturity	46	19	25	27	54
M. Grade Achievement	34	-32	-05	17	45

of both solutions that the more satisfactory from a psychometric point of view would be the oblique solution, and that the further analyses reported are reasonable.

The question of relationships among the first-order factors is best resolved by the second-order analysis. However, before moving to this structural approximation, several features of the relationships among the Promax factor axes (Table 2) are noteworthy. The first of these is the rather complex structure of the Intellectual Ability (from faculty perceptions rather than from test scores) factor: faculty seem to associate this quality not only with Intellectual Interests and Creativity, but also with Academic Motivation, Maturity, and Open-Mindedness. Judgments of Motivation, on the other hand, seem to relate not only to work habits, but also to Maturity, Probity, and Open-Mindedness as well as to Intellectual Ability, and, to a moderate extent, to Altruism, Likeableness, and Self-Insight. Open-Mindedness emerges as the trait most interdependent on the others, with high relationship to Motivation and Creativity (which includes components of independence as well) and strong relationship to Altruism and Probity, and, of course, to Motivation and Intellectual Ability. Thus, "Open-Mindedness" emerges not as a precise quality of flexibility vs. rigidity, but as one of the general positive terms for identifying those who conform to what would seem the most reputable stocks-in-trade in academia.

The second-order factor structure (Table 4) may throw further light on these interrelationships. Factor I seems to be concerned primarily with the observable aspects of the social behavior of the student. Some judgments about the personal self are involved, but the total context suggests that these are inferences drawn either from watching the interactions of the student with

others, or from actually interacting with the student and then generalizing that this is the way he must appear to others. As such, this factor may be tentatively named "Interpersonal Style."

At first glance, Factor II seems to involve similar content if the foregoing interpretation is essentially correct. Indeed, three of the first-order factors (Likeableness, Altruism, and Open-Mindedness) load substantially on both Factors I and II. Yet, Factor II seems to describe most exactly the behavior, oriented or controlled by principle and ethic, toward the social world at large, rather than toward individuals in day-by-day, situation-by-situation contacts. Here, the evaluation of the student is in terms of how well he measures up to the essential, cherished, ethical values of the Western civilization, and to describe the student as he must be, rather than as he would seem from watching him with others about him. Factor II is therefore tentatively named "Ethical Orientation."

Factor III combines intellectual values, ability, and performance with extraversion and, to some extent, with nonconformity. "Extraversion" now appears to be a misnomer, and the trait components of happy, active, optimistic, and sometimes arrogant and argumentative involvement with others draw particular attention. This type of extraversion seems to be something quite different from simple sociability; instead it seems to be an indication of whether the individual is more receptive to external or to internal stimulation. Going back now to the other loadings on intellectual curiosity, creativity, ability, and perception of performance, Factor III seems to be concerned with the student's intellectual interest in and involvement with the environment. Therefore, this factor may be tentatively named "Intellectual Involvement."

Factor IV, in contrast, describes the capability of the student to deal with his environment in terms of personal and intellectual maturity, rather than

in terms of his intellectual enthusiasm or capability. Here, the student is looking for a reasonable return for his investment of time and energy in college, he fits nicely into the life prescribed by the academic requirements, and he devotes himself to his tasks. His grades reveal his work habits, his integrity of intent, and his possession of purpose. This factor may be tentatively named "Academic Performance Style."

It is of extreme interest to note that, when examining these results against earlier analyses of the nature of the traits which faculty members associate with desirability (Davis, 1964b; Davis 1964d), Factor II (Ethical Orientation) seems to reflect the complex of traits which the teachers use to define that aspect of desirability which is separate and apart from academic performance. When secondary loadings are considered as well, the content is so nearly congruent that this factor seems to emerge as the nonperformance desirability factor.

Considering the fact that the general language the teacher uses to describe students may have many different meanings or may reflect inferences drawn from diverse observations, these results make somewhat remarkable good sense. The teacher can summarize what he learns about a student by describing the characteristic ways in which he reacts to others about him; how he permits ethic and principle to mediate his thinking and conduct; his interest in reading, thinking, solving, and the other intellectual stuff learning involves; and how he works and performs on assigned tasks.

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APPENDIX

Oblimax Rotation Tables

Table A-1

SCALES, FACTOR LOADINGS, AND FACTORS: 1962 STUDENT RATING FORM (OBLIMAX ROTATION) (N=696)

VARIABLE	COM	N	B	H	A	C	L	E	K	P	M	J	F	G	D	O	R	I	Q
N. FREEDOM FROM ANXIETY																			
11. seldom worries	51	53	12	06	00	-07	-07	01	-01	-01	-01	01	-02	-04	01	-03	09	05	05
23. calm	51	48	11	-04	07	-03	05	-02	02	01	-02	-01	-01	02	02	-03	10	02	-13
55. low need for reassurance	45	45	-07	08	08	02	10	03	-04	-05	-01	-02	-12	-03	05	10	36	16	-03
53. stable	65	31	-01	-02	09	04	07	12	-06	02	-02	03	06	-03	03	-00	07	01	02
35. happy	64	30	01	10	-05	01	-07	-02	-04	-02	-05	-02	18	00	-02	-06	04	-04	12
63. optimistic	54	20	-07	15	02	-01	-11	-02	08	09	01	05	11	05	-12	00	-03	12	-01
B. INTELLECTUAL ABILITY																			
37. makes good grades with ease	61	20	45	-05	-06	-08	07	-02	06	04	-04	-04	-01	02	06	10	-10	02	-01
49. intellectually quick	82	04	44	01	-03	-02	00	-02	01	-02	-01	01	-03	-02	-04	07	-06	02	00
13. above average ability	73	01	43	01	-04	02	-04	08	-03	-06	-04	-04	-02	04	-04	11	-01	00	04
28. good at analyzing	70	00	34	04	06	-01	05	-02	02	03	-12	10	-06	-02	-05	-01	-03	01	-05
1. high academic performance	71	05	32	00	02	03	-03	02	-03	-08	00	-09	11	03	01	15	-02	-01	-02
25. good grasp of abstract	68	-05	29	-01	07	-02	04	-01	02	04	-06	02	-08	-01	02	-04	02	03	02
64. intellectually versatile	65	02	16	00	-03	-02	03	-02	01	04	02	07	-01	-03	15	03	-03	03	07
80. kind of S institution should admit	63	-02	16	04	-06	02	01	13	-01	-12	00	00	06	08	-02	05	03	03	-01
H. EXTROVERSION																			
42. extroverted	66	22	04	48	02	-04	06	-01	08	01	-01	-01	01	-00	-07	-02	-06	-16	-10
71. argumentative	58	-17	-04	42	06	-09	14	00	08	-02	-06	-01	-07	-04	-04	09	01	-01	04
6. gregarious	68	15	-01	40	-03	08	07	-01	06	-01	14	01	-05	01	00	05	-05	-10	-05
33. willing to ask questions	56	-11	-09	33	04	-03	01	-04	-01	-00	02	09	06	04	01	04	02	-03	-03
76. arrogant	58	02	11	30	01	-04	13	-03	-01	00	-08	-13	-01	-08	-02	-03	-11	03	-06
78. good sense of humor	58	04	01	27	-06	01	06	02	-02	-01	-05	03	-03	10	-01	-09	06	-06	08
79. high level of physical energy	39	05	04	15	07	-03	-05	-01	-07	-05	12	-03	07	-03	-13	-04	03	03	09
A. DEPENDABILITY																			
14. meets deadlines	57	03	00	04	46	03	02	02	04	08	-09	-01	-06	-03	-01	-08	04	01	03
62. completes undertakings	61	05	-01	04	43	01	-03	05	01	09	05	03	02	-10	-03	-11	01	03	01
2. works steadily	63	07	-02	-03	41	-03	-02	-04	05	-02	-00	-04	02	06	04	01	-03	08	-00
38. thorough	77	-03	02	03	36	03	07	-03	03	03	-01	00	04	-02	-05	-01	-01	05	03
50. industrious	76	-03	-02	02	26	00	-09	02	00	-05	06	00	14	-02	-02	04	01	01	-03
26. self-disciplined	64	06	04	-04	24	05	06	06	06	-06	-02	-03	06	01	-02	-00	-02	07	-01
61. performs to top of ability	58	-04	-04	-02	20	01	-06	10	-03	-03	00	02	20	01	04	07	00	04	01
C. CONFORMITY																			
12. conforming	67	-08	-05	-02	02	54	07	-05	-04	-04	-04	-03	-01	01	-00	05	-03	-04	02
48. orthodox in behavior	58	-06	-01	-01	00	49	10	03	-03	-02	00	-03	03	00	-08	05	03	-03	-05
24. conventional	67	-01	-10	00	03	43	05	-07	02	02	-03	-03	00	-05	03	05	08	-18	-02
60. accepts majority values	44	01	05	00	02	30	-05	04	02	04	04	01	-02	-04	-05	00	-13	-05	13
72. has few idiosyncrasies	42	10	01	-07	-07	24	09	-01	04	01	-05	-01	12	-00	-04	-02	02	-04	-03

SCALES, FACTOR LOADINGS, AND FACTORS: 1962 STUDENT RATING FORM (OBLIMAX ROTATION) (N=696) (Continued)

VARIABLE	COM	N	B	H	A	C	L	E	K	P	M	J	F	G	D	O	R	I	Q
L. MATURITY/SOPHISTICATION																			
20. socially mature	71	05	-08	11	04	08	52	02	-02	00	04	-02	-07	09	08	-10	00	01	-02
44. sophisticated	55	-01	-01	09	-01	06	51	-01	-02	04	07	01	-14	07	05	-07	-05	02	-01
21. intellectually mature	71	02	14	-01	06	03	23	-04	02	01	-04	03	04	00	11	-04	-01	-02	-07
74. at home in college culture	53	14	-03	02	-08	-01	17	-04	-07	03	03	02	12	06	09	02	-02	-00	04
E. PROBITY																			
43. acts ethically	64	03	04	00	04	-03	00	54	01	-01	03	00	-10	08	-01	-02	01	-02	09
19. honest	71	05	-02	-01	-03	03	-02	53	-02	-00	03	-02	-02	05	06	03	04	04	09
67. principled	70	-03	-02	-01	01	-03	00	45	02	08	03	06	00	-01	-07	-06	00	00	07
K. ALTRUISM																			
51. high concern for welfare of others	76	-10	02	07	03	-02	-01	02	55	-03	10	-02	-03	-05	04	-02	-03	-11	01
27. altruistic	58	00	01	08	07	-04	-02	02	53	-01	01	-03	-06	05	02	05	02	-01	-09
15. interested in others	65	08	04	07	04	02	-05	-08	40	-04	10	-03	-03	02	07	02	07	-11	-01
75. high respect for human dignity	47	-04	-02	-04	-11	01	-04	11	16	01	01	04	14	-04	-01	-07	02	-01	01
P. SAT																			
84. SAT-M	52	-01	04	-01	08	-01	01	02	00	62	-06	-05	02	01	-07	07	-02	02	-02
83. SAT-V	56	-03	-07	01	06	-03	06	-00	-05	59	-03	02	01	-06	08	17	-03	-04	05
M. POPULARITY																			
18. active in campus life	55	-02	-10	-05	-06	06	03	04	06	-05	56	-01	01	-07	10	06	-11	09	00
30. leader among peers	64	00	-03	10	-02	-01	18	05	05	-04	46	03	-04	-02	-01	07	-05	03	-14
66. works well with others	57	-02	02	-03	-02	-02	03	-05	-01	05	27	05	01	-02	-04	-02	07	-19	02
54. liked by peers	60	-08	05	-05	-01	-09	11	-03	-03	05	19	-01	-02	11	-15	-01	03	-13	12
J. OPEN-MINDEDNESS																			
45. open-minded	67	03	00	-01	-03	-02	-02	-01	-04	-04	01	40	-08	00	03	02	-03	03	-11
57. fair-minded	61	-03	-01	-03	-05	-08	00	07	02	02	03	40	-06	-06	-10	02	00	-07	-07
69. open to new experience	55	01	-03	06	-01	-06	-03	-01	-09	-02	01	36	-06	-03	07	02	-01	-03	-02
77. generally objective in forming opinions	53	-02	-07	-03	00	03	07	-02	05	04	00	30	-02	-07	-09	03	04	08	-08
9. flexible	57	01	06	00	06	00	-02	-07	04	-07	02	25	-19	07	13	01	-04	06	07
41. willing to take direction	56	-05	01	-02	16	10	-07	05	-04	-01	-04	21	-06	09	-01	-03	-06	-04	00
58. realistic in outlook	51	01	09	-07	01	09	07	-06	-04	-12	-06	20	-02	-06	-15	03	-02	04	12

SCALES, FACTOR LOADINGS, AND FACTORS: 1962 STUDENT RATING FORM (OBLIMAX ROTATION) (N=696) (Continued)

VARIABLE	COM	N	B	H	A	C	L	E	K	P	M	J	F	G	D	O	R	I	Q
F. INTELLECTUAL GOALS/MOTIVATION																			
3. high interest in chosen field	44	-02	-01	-01	-04	04	-10	-05	-05	01	01	-09	37	-01	01	-07	-05	05	-06
56. high motivation to achieve	65	-13	01	-02	04	00	-10	-01	-03	-02	07	-02	31	00	-02	04	-16	02	-02
32. personal goals clear	51	02	-03	03	06	-03	-01	04	01	00	-02	-03	20	-03	-05	03	-12	07	17
70. a serious student	71	-07	-05	-04	13	-05	-02	01	-05	02	01	02	18	-01	09	06	05	-04	-03
22. eager to learn	78	-10	-01	08	06	03	-07	00	-03	-06	-01	05	17	02	06	03	07	-02	-04
73. high intellectual curiosity	80	-06	03	09	-04	-05	-05	01	-03	-02	02	07	16	-04	13	04	06	-04	-06
68. values like those of faculty	39	-02	-01	-08	-05	-02	00	01	05	03	-03	08	16	07	04	-02	-06	03	-09
34. interested in ideas	69	-07	07	10	-03	-01	01	05	04	02	-04	02	14	-02	12	-07	00	-05	-04
G. LIKEABILITY																			
5. pleasant	72	-07	01	-02	-06	01	11	00	04	-03	-08	-07	00	52	-07	06	-01	11	-03
29. likeable	78	-08	01	03	-07	-02	13	06	-01	-05	-05	-03	-06	47	-03	08	03	-00	02
65. affable	67	-01	-06	17	-03	-04	-03	-08	-03	05	-04	01	06	27	-06	-02	-01	-03	06
17. cooperative	61	-06	-01	-07	15	04	-01	05	03	03	04	03	00	22	05	-03	-04	-01	-03
D. INTELLECTUAL VALUES																			
10. broad intellectual interests	75	01	-01	01	-05	-04	07	00	07	01	06	-01	11	-08	37	00	01	-07	07
8. culturally rich	65	02	-02	-10	02	-05	20	-03	02	01	02	-03	-04	04	36	-07	-06	03	24
46. reads widely	55	02	01	-05	-00	-08	00	01	02	-04	02	01	-03	-09	36	04	05	-06	27
O. GRADE ACHIEVEMENT																			
86. Freshman GPA	54	06	16	04	-13	-01	-04	04	-01	05	04	07	00	03	01	52	-01	-02	-03
85. High School Rank	31	-02	07	02	-03	10	-12	-04	04	12	05	-00	-06	05	-02	42	10	02	08
R. FREEDOM FROM STATUS CENTEREDNESS																			
36. low need to stand out	48	27	-05	-07	00	04	-04	03	-03	02	-09	-01	-09	-03	00	02	43	-06	-08
39. not status centered	42	07	-07	-07	-02	-05	-13	-01	10	-04	-10	-01	-03	05	-04	03	37	07	03
I. INDEPENDENCE/CREATIVITY																			
31. self-directing	59	10	-02	-15	09	-07	00	-01	-03	-04	20	-01	05	03	-06	03	04	39	-03
7. independent	55	14	01	-14	03	-13	09	02	-07	05	09	-01	05	03	-03	-03	03	34	-03
16. shows originality	77	-03	10	00	-05	08	01	00	-06	08	07	00	03	01	04	-04	09	20	-04
4. imaginative	77	-04	12	03	-10	12	-03	-01	-01	06	08	01	08	-04	04	-04	06	17	-05
52. creative	69	-04	12	-04	-02	02	-02	-10	-02	04	07	00	09	-02	04	-08	04	15	-02
40. deep	63	-09	07	-07	01	-02	07	03	08	03	00	-04	04	04	03	-05	09	12	-01
Q. SELF-INSIGHT																			
59. positive family influence	18	-03	00	-03	01	00	-02	06	-03	01	-02	-05	-04	00	03	02	-03	-02	36
47. good self-understanding	54	01	-05	-01	-01	05	12	-04	07	00	-08	01	01	02	-03	04	05	10	27
	Σa^2	1.40	1.19	1.13	1.11	1.05	1.00	.94	.92	.90	.90	.81	.80	.79	.72	.70	.70	.69	.63

Table A-2

CORRELATIONS AMONG THE FIRST ORDER FACTOR AXES: (OBLIMAX ROTATION) (N=626)

	N	B	H	A	C	L	E	K	P	M	J	F	G	D	O	R	I	Q
N. Freedom from anxiety	-	-35	-19	-09	52	06	-10	15	-02	17	02	-10	24	-61	-18	-31	-55	17
B. Intellectual ability		-	50	43	-05	57	32	31	39	53	72	74	43	63	-09	76	64	54
H. Extroversion			-	06	-13	15	-09	14	28	51	38	38	35	39	-26	28	47	51
A. Dependability				-	28	50	55	28	-10	34	55	75	41	17	26	41	12	37
C. Conformity					-	12	16	26	00	24	27	20	43	-38	-15	-12	-39	25
L. Maturity/Sophistication						-	34	44	07	47	60	70	33	15	08	50	29	58
E. Probity							-	48	02	19	48	56	41	19	06	51	10	26
K. Altruism								-	20	52	66	55	58	07	-30	53	10	60
P. SAT									-	30	30	14	25	29	-14	29	23	24
M. Popularity										-	67	61	69	10	-37	50	08	70
J. Open-Mindedness											-	86	79	38	-29	74	28	74
F. Intellectual Goals/Motivation												-	65	38	-03	71	35	70
G. Likeability													-	16	-43	51	-06	65
D. Intellectual Values														-	-03	47	68	13
O. Grade Achievement															-	-20	03	-29
R. Freedom from Status-Centeredness																-	46	51
I. Independence/Creativity																	-	22
Q. Self-insight																		-